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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE **Application Number** 10/728,496 TRANSMITTAL FORM Filing Date 12/05/2003 **First Named Inventor** SAHA, et al. F Group Art Unit 2621 be used for all correspondence after initial filing) **Examiner Name TBA** 22253-75530 [204688] otal Number of Pages in This Submission Attorney Docket Number ENCLOSURES (check all that apply) Fee Transmittal Form ☐ Drawing(s) – Figs. ☐ After Allowance Communication to TC ☐ Fee Attached Licensing-related Papers ☐ Appeal Communication to ☐ Amendment/Reply/ Board of Appeals and Petition Interferences ☐ After Final ☐ Affidavits/declaration(s) Petition to Convert to a Appeal Communication to Provisional Application (Appeal Notice, Brief, Reply Brief) Extension of Time Request ☐ Power of Attorney, Revocation Change of Correspondence ☐ Proprietary Information Express Abandonment Request Address ☐ Status Letter Terminal Disclaimer Information Disclosure Statement U Other Enclosure(s) ☐ Request for Refund ☐ Certified Copy of Priority (please identify below): Document(s) PTO 1449 with copies of cited references 1, 3, 4, 6-8, 11-21, 22-35, ☐ CD, Number of CD(s) 38-42, 44, 45, 46, and 48; Return Response to Missing Parts/ ☐ Landscape Table on CD Postcard. Incomplete Application Response to Missing Parts Remarks: under 37 CFR 1.52 or 1.53 SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT Firm Name Drinker Biddle & Reath LLP Evelyn H. Mc Consth Evelyn H. McConathy, Reg. No. 3 Signature Printed Name Date February 22, 2005 CERTIFICATE OF EXPRESS MAIL I hereby certify that this paper, along with any documents referred to as being enclosed therewith, is being deposited with the United States Postal Service via express mail label EV320479204US addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this date: February 22, 2005. Typed or printed name Signature Date: February 22, 2005

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Itere Application of:

SAHA, et al.

pplication No.: 10/728,496

Group Art Unit: 2621

Filed: 12/05/2003

Examiner: TBA

Title: METHOD FOR MEASURING STRUCTURAL THICKNESS FROM LOW-

RESOLUTION DIGITAL IMAGES

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Sir:

The attention of the Patent and Trademark Office is hereby directed to the documents listed on the attached Form PTO-1449.

One copy of each of the following references is attached: 1, 3, 4, 6-8, 11-21, 22-35, 38-42, 44, 45, 46, and 48.

The following references are books and copies of same are not included with this Information Disclosure Statement:

Reference 10: Cho, Z.H., Jones, J.P., and Sing, M., Foundations of Medical Imaging, Wiley, New York (1993), found on page 13, paragraph 63 in the Description of the Embodiment of the invention section of the application.

Reference 22: Press, W.H., Flannery, B.P., Teukolsky, S.A., and Vetterling, W.T.," Numerical Recipies: The Art of Scientific Computing," Cambridge, London: Cambridge University Press (1986), found on page 21, paragraph 90 in the Description of the Embodiment of the invention section of the application.

Reference 36: Serra, T., "Image Analysis and Mathematical Morphology," Academic Press, San Diego (1982), found on page 2, paragraph 7 in the Background section of the application.

Reference 37: Sonka, M., Hlavac, V., and Boyle, R., "Image Processing, Analysis, and Machine Vision," 2nd ed., PWS Publishing, Brooks/Cole, Pacific Grove, CA (1999), found at page 14, paragraph 63 in the Description of the Embodiment of the invention section of the application.

Reference 43: Udupa, J.K., and Herman, G.T.E., (eds.), 3D Imaging in Medicine, CRC Press, Boca Raton, FL (1991), found on page 14, paragraph 63 in the Description of the Embodiment of the invention section of the application.

Reference 47: Weisstein, E.W., CRC Concise Encyclopedia of Mathematics, Chapman & Hall/CRC, Boca Raton, FL, (1999), found on page 2, paragraph 6 in the Background section of the application.

No fee or certification is required in connection with this Information Disclosure, since it is being submitted prior to the last of 1) issuance of a first Office Action on the merits, or 2) expiration of the three-month period following filing of the above-identified application.

It is respectfully requested that the information be considered by the Examiner and that a copy of the attached Form PTO-1449 be returned indicating that such information has been considered.

In the event any fees are required in connection with this paper, please charge Deposit Account No.: 50-0573. A copy of this document is enclosed.

Applicants' undersigned attorney may be reached by telephone at (215) 988-3361. All correspondence should be directed to the below-listed address.

Respectfully submitted,

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Sheet 1 of 2 Form PTO-1449 DOCKET NO. 22253-75530 APPLN. NO. 10/728,496 U.S. Department of Commerce [204688] Date Filed: February 17, 2005 APPLICANT: SAHA, et al FILING DATE: 12/05/2003 **GROUP 2621 U.S. PATENT DOCUMENTS** Initial Document Number Date Name Class Subclass Filing Date if appropriate FOREIGN PATENT DOCUMENTS Translation Document Number Date Country Class Subclass Yes/No/Abstract OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.) Aaron, J.E., Makins, N.B., and Sagreiya, K., "The microanatomy of trabecular bone loss in normal aging men and women," Clinical Orthopaedics Related Res. 215:260-271 (1987). Bezdek, J.C., and Pal, K., "Fuzzy models for pattern recognition," IEEE Press, New York (1992). 2. 3. Bogomolny, A. "On the perimeter and area of fuzzy sets," Fuzzy Sets Systems 23:257-269 (1987). Borgefors, G., "Distance transformations in arbitrary dimensions," Comput. Vision Graphics Image Process. 27:321-345 (1984). 5. Borgefors, "Applications of distance transformations," in Aspects of Visual Form Processing (C. Arcelli, et al., Eds.), pp. 83-108, World Scientific, Singapore (1994). Borgefors, G., "On digital distance transformation in three dimensions," Comput. Vision Image Understanding 6. 64:368-376 (1996). Bradbeer, J.N., Arlot, M.E., Meunier, P.J., Reeve, J., "Treatment of osteoporosis with parathyroid peptide (hPTH 1-34) and oestrogen: increase in volumetric density of iliac cancellous bone may depend on reduced trabecular spacing as well as increased thickness of packets of newly formed bone," Clin. Endocrinol. (Oxf) 37:282-289 Dalle Carbonare, L., Arlot, M.E., Chavassieux, P.M., Roux, J.P., Portero, N. R., Meunier, P.J., "Comparison of 8. trabecular bone microarchitecture and remodeling in glucocorticoid-induced and postmenopausal osteoporosis," J. Bone Miner. Res. 16:97-103 (2001). Chavassieux, P., Arlot, M., and Meunier, P., "Clinical use of bone biopsy," in Osteoporosis, 2, (Marcus, Feldman, 9. and Kelsey, Eds.) New York: Academic Press, pp. 501-509 (2001). Cho, Z.H., Jones, J.P., and Sing, M., Foundations of Medical Imaging, Wiley, New York (1993). Danielsson, P.E., "Euclidean distance mapping," Comput. Graphics Image Process. 14:227-248 (1980). 11. Fu, K.S., and Rosenfeld, A., "Pattern recognition and image processing," IEEE Trans. Comput. 25:1336-1346 (1976).Hildebrand, T., and Ruegsegger, P., "A new method for the model independent assessment of thickness in three-13. dimensional images," J. Microscopy 185:67-75 (1997). Hwang, S.N., and Wehrli, F.W., "Estimating voxel volume fraction of trabecular bone on the basis of magnetic resonance images acquired in vivo," Internat. J. Imaging Systems Tech. 10:186-198 (1999). 15. Kaufmann, A., "Introduction to the Theory of Fuzzy Subsets," Vol. 1, Academic Press, New York (1975). Kong, T.Y., Roscoe, A.W., and Rosenfeld, A., "Concepts of digital topology," Topology Appl. 46:219-262 (1992). 17. Ma, J., Wehrli, F.W., and Song, H.K., "Fast 3D large-angle spin-echo imaging (3D FLASE)," Magnet. Reson. Med. 35:903-910 (1996). Pal, N.R., and Pal, S.K., "A review of image segmentation techniques," Pattern Recog. 26:1277-1294 (1993). 18. Parfitt, M., Mathews, C. H. E., Villanueva, A. R., Kleerekoper, M., Rame, B., and Rao, D. S., "Relationships between surface, volume, and thickness of iliac trabecular bone in aging and in osteoporosis. Implications for the microanatomic and cellular mechanisms of bone loss," J. Clin. Invest. 72:1396-409 (1983). Pizer, S.M., Eberly, D., Fritsch, D.S., and Morse, B.S., "Zoom-invariant vision of figural shape: The mathematics of cores," Comput. Vision Image Understanding 69:55-71 (1998).

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